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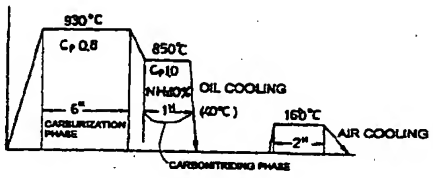
(54) HIGH BEARING-STRENGTH STEEL PARTS AND PROCESSES FOR THE PRODUCTION THEREOF

(57) High surface pressure resistant steel parts and their producing methods are disclosed. These steel parts are useful as gears, cams, bearings and similar high-strength compact steel articles which are required to have wear resistance and strength to withstand fatigue in rolling or rolling-slipping applications. In a steel part formed according to the invention, a fine nitride and/or carbonitride having at least an average grain size of 0.3 μm or less is dispersed in the contact surface structure; a multi phase structure composed of martensite, which is divided into extremely fine pieces, forming a disordered shape, by the nitride and/or carbonitride, is formed; and a carbide having a grain size of 3 μm or less is dispersed to increase the hardness of the surface. Such a steel part is produced by carrying out carbonitriding or carburization/carbonitriding so as to precipitate extremely fine AlN; using nitrogen permeating from the surface and by carrying out quenching or quenching/tempering, starting from a temperature region where the parent phase is austenite

FIG. 3



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